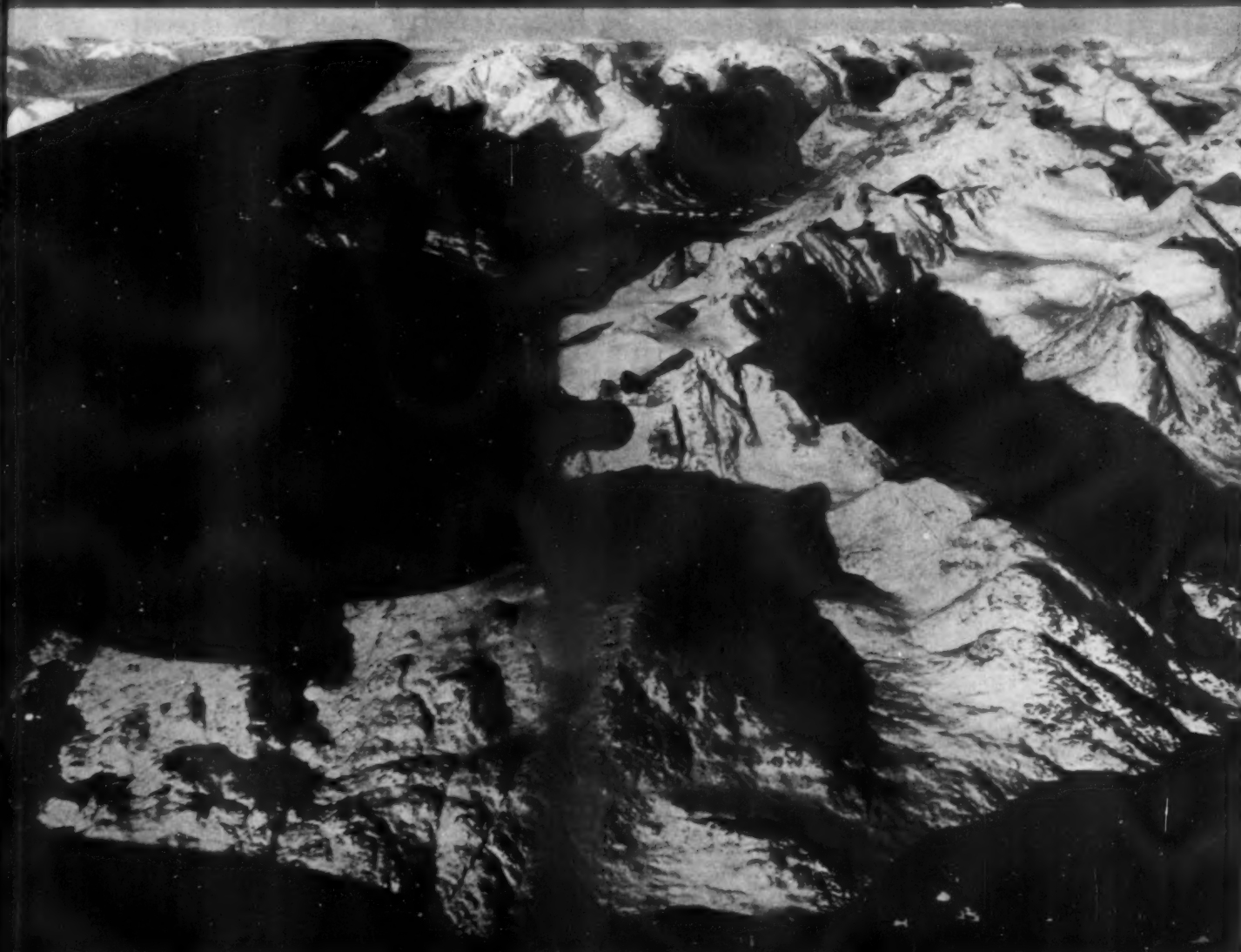


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# SCIENCE NEWS LETTER

JAN 2 1945  
DETROIT

THE WEEKLY SUMMARY OF CURRENT SCIENCE • DECEMBER 16, 1944



Top of the World

See Page 389

A SCIENCE SERVICE PUBLICATION



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PUBLIC HEALTH

# Leprosy Expected

**A small number of those serving in the armed forces in foreign countries where the disease is prevalent will become its victims, it is predicted.**

► A SMALL NUMBER of those serving in the armed forces in foreign countries where leprosy is prevalent will become its victims, two authorities on leprosy predict (*Journal, American Medical Association*, Dec. 9).

The authorities making this prediction, which they term a "safe" one, are Dr. Ralph Hopkins, consulting dermatologist at the U. S. Marine Hospital, Carville, La., and emeritus professor of diseases of the skin, Tulane University, and Dr. C. H. Faget, medical officer in charge of the Carville institution which is better known as the National Leprosarium.

Their prediction is based on experience from the Spanish-American War. Thirty-two veterans of that war have been admitted to the Carville hospital. All of them presumably contracted the disease in foreign countries. The 51 veterans of World War I and the 10 veterans of World War II already admitted to the institution, however, probably all contracted leprosy before induction into military service. They came from states or countries in which the disease is prevalent.

Of the 723 patients admitted to the Leprosarium between July, 1928, and January, 1944, the period covered by the current report, one-fifth or 20% have been released conditionally. They have the disease in arrested form and are no longer a menace to the public health.

Of 16 new kinds of treatments tried, "best results with least harmful effects were produced by promin and diasone," the two physicians report. Promin and diasone have been hailed as promising treatments for tuberculosis but have not yet been accepted as proved remedies for that condition.

They are still considered experimental also in leprosy. Other experimental treatments for the leprosy patients included penicillin, four kinds of sulfa drugs, diphtheria toxoid, pooled human blood plasma and fever treatment in the Kettering fever cabinet.

Yearly admissions of patients to the Leprosarium have shown some shifts during the period studied. Nearly three times as many now come from Texas as

formerly and the yearly average admissions are greater from this state than from any other. Louisiana, with the next highest number of average yearly admissions, has a few less than formerly.

The decline in admissions from Minnesota and Massachusetts warrants the belief that the disease is not indigenous in those states and that the foci established by immigration have disappeared or are disappearing.

From California and Florida, on the other hand, there are enough native born patients admitted each year to argue for the disease having been established there, although there are also evidences of imported cases.

*Science News Letter, December 16, 1944*

PUBLIC HEALTH

## Keep Up Guard Against Danger of Shipyard Eye

► THOSE OF YOU who live in industrial areas must continue to keep alert to the danger of shipyard eye, warns Dr.

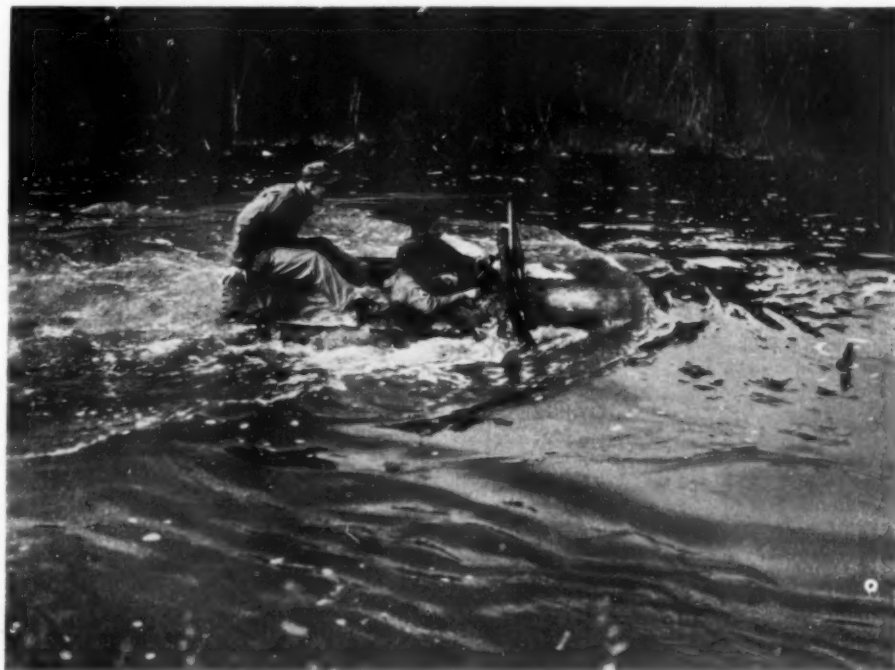
Hedwig Kuhn in her book, *Industrial Ophthalmology*. This book, published by the C. V. Mosby Co., is written for physicians specializing in treatment of eye diseases. There are, however, many things in it of interest to all of us.

Shipyard eye is known medically as epidemic keratoconjunctivitis. It is, as you may know, a very "catching" disease. It is not limited to shipyards and workers in them, as its popular name might suggest. It struck its first heavy blow at the shipyards about two years ago but has also appeared in such industrial centers as Schenectady, Buffalo, Detroit, Milwaukee and Chicago.

If you have not been hearing of any cases lately, that means that doctors, public health authorities and plant management have been taking great care to prevent outbreaks of the disease. These efforts must continue and citizens in industrial areas must continue to help because, in the opinion of Major Murray Sanders, who has studied the disease intensively, shipyard eye is here to stay.

Doctors are "not yet equipped with an effective weapon for cure of this condition," Dr. Kuhn states. "Because of this there is only one method of procedure and that is prevention."

Be suspicious of red, watering eyes that feel as if they had something in them. Such eyes should be seen at once by an eye doctor. Anyone who touches such eyes or the skin around them, to



**WATERPROOF JEEP**—The engine of this jeep is protected by a plastic to guard against damage while crossing the stream.



see whether there is a cinder or something in them or to apply compresses, should scrub his hands thoroughly immediately afterwards.

At work and at home, use your own towel, handkerchief, wash cloth and do not let anyone else use yours. This cuts

down the chance of picking up or passing along the infection. Make a habit of keeping your fingers away from your eyes. Fingers that touch eyes, to get out a cinder, for example, should be scrubbed before as well as after.

*Science News Letter, December 16, 1944*

#### MEDICAL ECONOMICS

## Medical Care for All

A group of 29 physicians, economists and administrators, organized as the Health Program Conference, has presented a new nation-wide health plan.

► A GROUP OF 29 physicians, economists and administrators, organized as the Health Program Conference, have come forward with a new nation-wide health and medical care program. Details appear in a report published by the Committee on Research in Medical Economics.

All or almost all of the population should be covered by the medical care system, these planners believe. Money for supporting it should come through contributory insurance required by law. It should be levied and collected from individuals and employers by the federal government. Taxation may be necessary to establish hospitals, medical centers and similar facilities and to pay for medical care for the indigent.

Administration of the program, however, should be handled locally, according to the proposed plan.

Policies should be determined by groups representing both the public and the medical profession. Public representation should cover the entire population, not any one class or organization.

Freedom of patients to choose and to change doctors and hospitals and of physicians to accept or refuse individual patients is provided.

Group practice is favored as being a most economical way of providing the best medical care. Health centers where the health department and preventive medical activities, the doctors, the hospital, and diagnostic laboratories and other facilities would all be together seem to be favored.

Voluntary agencies and health insurance plans already in operation, such as the Blue Cross, might be drawn into the nation-wide program and carry on their functions within it.

Three methods of paying physicians should be recognized: salary, capitation and, under certain circumstances, fee-for-

service. The latter method is called "the most open to abuse by patients and physicians" and the most costly to administer. It should be discouraged, the 29 planners believe.

Compensation to physicians should be adequate in terms of annual income and in consideration of professional incomes usual among physicians of comparable ages, specialties and types of community. It should be commensurate with the physician's skill, experience and responsibility. Methods of payment should be such as to stimulate competition among physicians on a professional basis and discourage it on a financial basis. The method of payment should be determined locally by the physicians in a community.

*Science News Letter, December 16, 1944*

#### ORDNANCE

## Heavy Artillery Aided by New Electronic Equipment

► NEW ELECTRONIC equipment in the hands of ballistics experts of U. S. Army Ordnance increases the accuracy and extends the battle usefulness of American heavy artillery.

The new equipment, mounted on 2½-ton trucks, is capable of measuring the speed of projectiles that must hit targets up to 17 miles away within a time tolerance of a hundred thousandth of a second. It helps solve complicated problems involving such factors as the age of the gun, quality of ammunition, curvature of the earth, wind velocity, temperature and barometric pressure, enabling Ordnance men promptly to calibrate all types of heavy artillery weapons.

Old guns and howitzers cannot shoot as far as new weapons, and when guns are being fired together in battery at the same target allowances have to be made for each gun used. Ordnance calibration teams on the various battlefronts, using

the new electronic devices, supply gun crews with needed information about the guns they are firing, so that front-line batteries can be synchronized.

*Science News Letter, December 16, 1944*

Cooked vegetables that have been preserved by freezing contain less than one-third their original vitamin value.

Alpacas and vicunas have been crossed in Peru producing hybrids taller than vicunas and very resistant to cold; they have fine, silky, long wool said to be an improvement over the alpaca.

## SCIENCE NEWS LETTER

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## GEOGRAPHY

# Sub-Arctic Flight

Iceland is a pause in flight to Europe and war; our airmen routinely fly bombers there from Labrador. "Briefing" for trans-ocean flight is dramatic.

By WATSON DAVIS

See Front Cover

*Mr. Davis continues his narrative of an air visit to USA air bases on the North Atlantic route to Europe. See SNL, Dec. 9. The photograph on the cover of this SCIENCE NEWS LETTER was taken while the party was flying over the Greenland Ice Cap.*

► ICELAND—From Meeks Field here it is a few hours' hop to the Old World in flames and a few hours air time to the New World from which there are coming streams of planes to extinguish world turmoil with bullets and bombs.

This is a key Army Transport Command airport for crossing the North Atlantic in war or peace. American troops maintain it at the invitation of what is at once the oldest and the newest American republic. It is just as American as any part of the USA and yet it is a few minutes ride in an Army C-47 (DC-3 to you old airline riders) to Reykjavik, Iceland's capital city with 45,000 population—of whom, it seems, 40,000 can talk to the USA GIs in English, if not in American.

Iceland is still a war zone, with the Royal Navy still fighting submarines off the coast in sight of land. Our ack-ack is still alert and eager to get a crack at any Nazi planes. Just five days before the party of American writers arrived a small Icelandic ship returning from the United States was torpedoed by a German submarine with heavy loss of life.

Iceland is a neutral although occupied country, but Icelanders and their press are not neutral in condemning this attack upon them.

Geographers argue as to whether Iceland belongs to the American side of the world or the European. Its language and culture are closely bound to Europe, particularly to all Scandinavia. Denmark furnished Iceland a king up until June of this year, when the present republic was proclaimed.

America is furnishing commercial and cultural cooperation beyond the job the military is doing, and this, along with

the aviation links, will tend to make Iceland more a part of the Western hemisphere in fact.

A new land geologically, with hot springs and active volcanoes, Iceland will have a rebirth as a major stepping stone between Europe and North America, recapitulating in a very different way the voyages of those pioneering Icelanders who founded Vineland in the New World centuries before Columbus.

Thanks to the Army's Air Transport Command, the aerial pioneering has been done. Reykjavik to New York's 27 days by boat is now less than half that number of hours by air. Thousands of young men are flying eastward these above-ocean lanes with only maps, briefing, good warplanes and instruments and the extraordinary navigational aids given them by radio and weather reporting. Thousands of war casualties are being flown westward in comfort, so far as transport is concerned.

To Iceland these war developments mean more than normal progress. They are the instigations of a peaceful, helpful revolution that will remove this little country from the world list of inaccessible and remote places. Icelanders have known much more about the USA than we have known about them and thousands of them have come to live in the United States. Western Icelanders they are called. Thousands of American officers and men who have been on duty here now know about the Icelanders and Iceland.

The terrain may be bleak, the winds cold, the roads rough and the prices high, but American soldiers too will want to come back when they have time for vacation trips to hot springs and glaciers and when the times and grass are greener.

► GOOSE BAY, LABRADOR—Upon Labrador's Plateau, more than 100 miles from the sea, lies this airport that is a major station for the dispatching of warplanes from the United States and Canada to Europe.

From its long, concreted runways, its hangars and its barracks to the nearest village, Mud Lake (population six families) is 10 miles. Goose is as far north

of Maine as Washington is south. Northwest River, 150 people, the location of one of the Grenfell missions, is 22 miles away.

The U. S. Army's Air Transport Command and the Royal Canadian Air Force operate this field in complete harmony, with the gray-blue of the RCAF and the RAF almost as prevalent as the familiar browns of our own flyers.

A couple of feet of snow lies over the spruce-dotted landscape, with mechanical snow removers chopping the ramps and runways wider night and day, sending geyser-like showers of pulverized snow into the air. Arctic clothing is worn by officers and men alike.

Only air transport and radio connect this base with the outside world now. The good deepwater connection to the Atlantic through Hamilton inlet is now frozen and will be until next June or July. Major supplies are brought in by water during the three summer months.

Isolated as this post actually is, yesterday's Chicago or New York newspaper is likely to be lying around the recreation rooms.

There was no Goose Bay Airport three years ago. When the North Atlantic route to Europe was being established, the usefulness of a hopping-off place inland in Labrador, where the mists of the oceans would be lacking, was foreseen. Surveys were made and the Canadians selected the area that is now known as Goose Bay.

Canadian civilian engineers landed by ship on Sept. 29, 1941, bringing with them bulldozers, concrete mixers, lumber, cement and other materials for starting an airport. On Dec. 6 planes landed on the first runway. American forces came in the following April and by Thanksgiving Day had moved into their own barracks.

Since then the ATC base has grown and improved. There are now ample facilities for housing and feeding tactical pilots and crews (meaning the boys who run the warplanes), as well as Vips (Very Important Persons) such as generals, diplomats, etc., and Vups (Very Unimportant Persons) such as the party of war correspondents visiting the bases of the North Atlantic Division of the Air Transport Command.

The present commanding officer of Goose Bay Base is a colorful personality and aviation pioneer, Lt. Col. B. R. J. (Fish) Hassell, whose experience dates back to aviation's early days. He is the only man who has landed on the Greenland ice cap and walked off it unaided.

An advocate of flying in the subarctic when few believed it could be done, Fish is very much in his element as the C.O. of a snow-decorated base that pushes scores of planes onto the fighting fronts with great regularity.

► **GOOSE BAY, LABRADOR**—They are eager young boys who in peaceful times would be playing on college football teams and horsing around fraternity houses. They are young airmen of the war—pilots, co-pilots, navigators—the men who fly and guide the flying machines of the Army Air Force Europe-bound.

The big, barnlike briefing room is filled with them, listening with impatient attention to the Air Transport Command briefing officer, a major sitting on the corner of the desk in front—a sort of coach or professor. It is quite a game to be playing. Crossing the North Atlantic for their first time—Labrador to Iceland direct—with full responsibility for ships worth hundreds of thousands of dollars and the ten lives aboard the giant B-17s and B-24s. Greater responsibility than that, in fact, for in a few weeks they are to spearhead in the air our drives upon Germany.

Outside on the airfield their crew chiefs and other crew members are warming up the engines in the winter evening cold, checking and then checking again the hundreds of pieces of equipment that must be kept in order on a big bomber that it may fly speedily and safely. In another briefing room, the radio operators are being told the details of their jobs on the hop to begin in a few hours—how to call this station and that and how to use radio aids to aviation that now mark airways on icy oceans.

"We'll have a movie first," says the major. A screen drops down over the background of maps and charts. "Confidential" warns the opening flash.

This is old stuff to these lads, almost everything they work with is marked "confidential" or "secret." With quiet confidence the movie narrator's voice points the screen story of the trip to come—how to take off from Goose Bay, what next landmark and radio range to watch for, what to expect in Davis strait. Greenland's mountains and ice cap are shown rising out of the sea. The way up a fjord to the American Air Transport Command on Greenland's southern tip, BW1, is shown.

"We don't expect you to have to land here but here is the way to do it if you

have to," the briefing movie says.

We of the press knew it could be done, for our airplane had done it a few days earlier.

"Minimum altitude for contact flying over the ice cap is 11,000 feet," the briefing movie warns. "Out over the sea again on the way to Iceland halfway to this journey's end, check on this radio range, calls this station to let them know where you are and when you expect to arrive (E T A is the way 'estimated time of arrival' is said over the radio). Then the approaches to Meeks Field circle this way, please call in at this point. The runway is so wide and so long. Then there is a field at Reykjavik that you may have to use if you do come in this way. Your alternate (meaning the field the plane will be headed for if weather is unexpectedly bad at Meeks Field) is in the United Kingdom."

Yes, you will have enough gas to get there if you have to. And the movie shows the way, although seldom does any pilot need to head there. "Oh, yes," the briefing movie voice seems to say as a sort of after-thought, "there is an emergency field farther north on the east coast of Greenland, BE2, that we don't expect you to use, but here is the way to it."

And the pilots saw what we had seen a few days before when we had flown the same route to inspect this aviation outpost from the air. The towering mountains that surround the little landing strip at BE2 were good for a laugh from the pilots.

So ended a very effective educational movie—but unlike one in school it may have given life-or-death information.

"Now that you see all that scenery" said the major, taking over from the screen, "we are going to send you on a rhumb line route that will pass miles away from Greenland."

About radio information you receive enroute, explained the major, don't rely on it absolutely. Check it with dead reckoning. Occasionally a German submarine will try to give you false radio bearings or jam a radio range, but that does not happen often and you have plenty of ways to check on such false information.

Now the weatherman has arrived with a stack of flight plans, codes, etc., that chart in three dimensions the way that these boys will fly from America to Iceland. Tonight the most favorable altitude is so many thousands of feet. There is no cause for worry about the weather, no icing is expected; which is pleasing prognostication because ice on wings and



**START CLIMBING, SOLDIER!**—This is the slogan at Northington General Hospital in Tuscaloosa, Ala., where the Army's reconditioning program is in full swing (See SNL, Dec. 9). A man with an injured leg is seen on the hospital's obstacle course.

in carburetors is one of the great dangers of winter flying.

"We have been working on this forecast for the last 24 hours," the meteorologist tells the pilots and aviators. "Hundreds of weather observers in the Far North as well as in Greenland have sent in their reports. Planes have reported from the very areas you will fly. We believe that we are telling you just what kind of weather you will run into—and it's good flying weather. You'll have a good crossing."

Questions? Just a few.

"O.K.," says the briefing major, "make out your clearances, pick up your flight lunches, be sure you have all your charts and papers. Please be careful in taxiing to take-off position. Get going, gentlemen."

The night noises of Goose Bay plateau, with its scrub spruce, consist of roaring engines, screeching brakes, the sweeping up-roar of take-offs. Another air fleet is off to war.

P.S. They all got to Iceland safely, about 10 hours after take-off from Goose Bay, including that young pilot who during briefing was fondly playing with a deflated football.

*Science News Letter, December 16, 1944*

Sugar is a pure organic compound that is prepared in the United States in much larger quantity than any other.



## ENGINEERING

# Papreg Paper Plastic

Suitable for use in non-structural parts of aircraft, the new laminated paper plastic has a hard, smooth surface, and resists moisture and decay.

►THE NEW LAMINATED paper plastic now known as papreg, suitable for use in non-structural parts of aircraft and for other commercial purposes, was described in New York at the meeting of the American Society of Mechanical Engineers by E. C. O. Erickson and George E. Mackin of the U. S. Forest Products Laboratory at Madison, Wis. Development of this plastic was carried out at that laboratory.

Papreg has a hard, smooth surface, and resists moisture and decay reasonably well. It has a specific gravity of about 1.4 at a resin content of about 35%. It lends itself to low-pressure molding technique, and has been satisfactorily post-formed to moderate double curvature.

The development work carried out at the government laboratory included investigations on the properties of papreg as influenced by such variables as wood species, pulping processes and paper-

making procedures, and by the type and amount of resin and the molding conditions.

"The paper from which papreg is made may differ greatly in tensile strength between the machine direction (grain lengthwise) and the crosswise direction of the sheet. This difference in properties of the base paper," the speakers stated, "is reflected in the strength of the papreg since it can be made with the grain direction of all sheets in the same direction, or with alternate sheets at right angles to each other.

"In the lengthwise direction, the parallel-laminated papreg has tensile and flexural strengths of 36,000 pounds per square inch," they explained, "and in the crosswise direction, strengths of 20,000 and 24,000 pounds per square inch for tension and flexure respectively."

The greatest deficiency of papreg in mechanical properties is in toughness and

ductility. Its strength increases with decrease in temperature but shows a general decrease with increasing temperature.

*Science News Letter, December 16, 1944*

## Diesel-Electric Power

►"THE DIESEL-electric locomotive has proved that an expensive tool, in its place, can be the cheapest in the long run and has caused more development and research in motive power to be initiated than has anything since the electric locomotive first challenged the right of steam to a monopoly in the hauling of trains." This is the opinion of a railroad survey committee of the American Society of Mechanical Engineers in its report presented at the same meeting by E. C. Young, chairman.

"Modern motive power has demonstrated beyond all doubt," the report states, "that the older locomotive, regardless of differences of opinion as to what constitutes an old locomotive, can no longer hold up its end in the keen competition of mainline traffic." Continued improvement in steam locomotive design, and the new gas-turbine locomotive in an experimental stage of development, "necessitates improvement in design and reduction in price of the diesel-electric road locomotive if its gradual adoption by the railroads as a standard motive power unit is not to be arrested."

*Science News Letter, December 16, 1944*

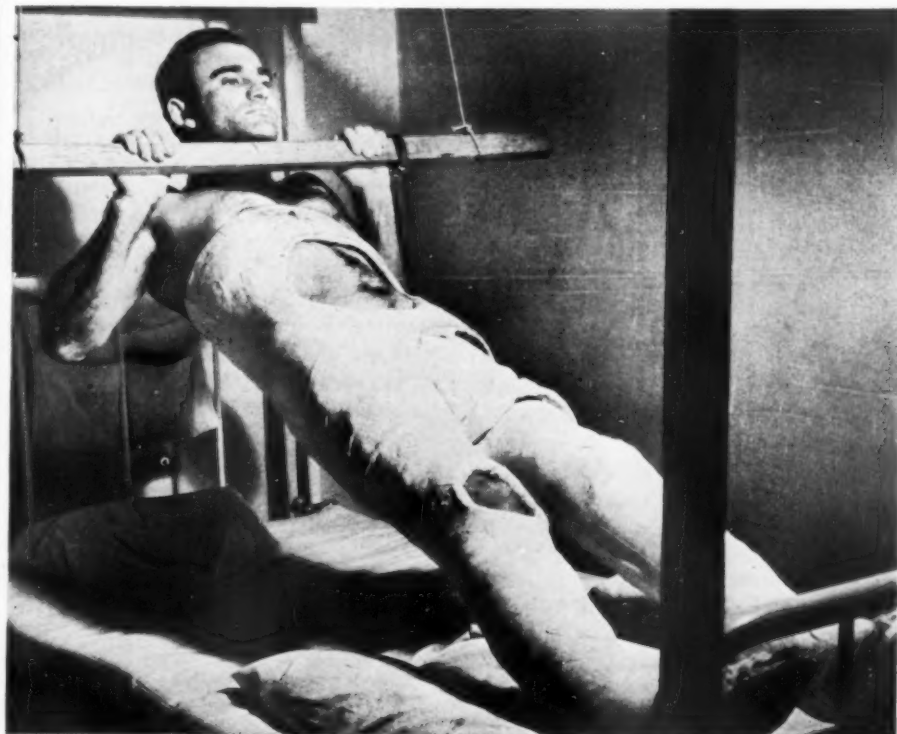
## Adhesives Improved

►NEW DEVELOPMENTS in the field of adhesives include an adhesive to hold a light-weight deck covering in place, thus providing surfaces on which you can walk without slipping for airplanes and ships; adhesives that stick rubber and synthetic rubber to metal and still other adhesives for the lamination of metal parts and plywood, Fred Wehmer, of the Minnesota Mining and Manufacturing Company, told the meeting.

"The uses to which adhesives are put are almost beyond enumeration," he declared. "The war has put an emphasis on replacement materials, and as a result many new resins and other materials are being used as adhesives."

The speaker outlined many new wartime applications for adhesives that hold promise for postwar development. Among the various types, he pointed to structural adhesives which include vulcanizing adhesives and adhesives used in laminating, or making sandwiches of metals and other materials.

*Science News Letter, December 16, 1944*



**PULL-UPS IN A CAST**—This patient is doing pull-ups on his "monkey-stick" to keep the parts of his body not encased in plaster in condition. Calisthenics twice daily are scheduled at Northington General Hospital.

## MEDICINE

## Gamma Globulin Is Called "Material of Choice"

► **GAMMA GLOBULIN**, obtained as a by-product from the blood collected by the American Red Cross for our fighting forces, is the "material of choice" for protecting babies and children against measles, Dr. Morris Greenberg, Dr. Samuel Frant and Dr. David D. Rutstein, of the New York City Department of Health report (*Journal, American Medical Association*, Dec. 9).

It was given to 814 children between six months and six years of age who had not had measles but had been exposed to it through a case developing in a brother or sister or some other person living in the same house.

Of these 814 contacts, as they are called, more than three-fourths, or 641, escaped measles altogether. Mild measles attacked 160, while 13 developed moderate measles. Ordinarily, measles attacks four-fifths or more of children exposed to it by contact with a case in the home.

Gamma globulin, obtained by a method developed by Dr. Edwin J. Cohn of Harvard, was compared with another measles preventive, placental globulin, obtained from human placentas by a method developed in 1933 by Dr. C. F. McKhann and Dr. F. T. Chu then working at Harvard Medical School.

This placental globulin gave complete protection to 38.9% of the 90 children in whom it was injected, but severe measles developed in 23.3% and modified measles in 37.7%. Reactions occurred in almost half, 41% of those injected, but in less than 1% of those given the gamma globulin, which is a by-product of blood serum production for the fighting forces.

*Science News Letter, December 16, 1944*

## MEDICINE

## Penicillin Succeeds in Human Anthrax Cases

► **PROMPT RECOVERY**, thanks to penicillin, of three women suffering with anthrax is reported by Dr. Franklin D. Murphy, Dr. Alfred C. La Boccetta and Dr. John S. Lockwood, of the University of Pennsylvania (*Journal, American Medical Association*, Dec. 9).

These are believed to be the first human patients with anthrax treated with penicillin. Successful use of the mold chemical in mice infected with anthrax was announced in October of this year by Dr. F. R. Heilman and Dr. W. E.

Herrell, of the Mayo Clinic (See *SNL*, Nov. 4).

The women treated by the Philadelphia doctors were wool workers. They suffered from an uncomplicated cutaneous form of the disease. Each had a painful sore on her skin which at first looked like a pimple but rapidly got larger, inflamed and discharging. Penicillin cleared up the skin condition rapidly and the women were well within nine or 10 days.

Larger doses, the doctors believe, would be equally effective in more severe skin infections and in cases in which the anthrax germ attacks internal organs. They believe it should have further clinical trial in this disease, which, although not widespread, is still an important medical problem in the wool and leather industries, killing more than 13 of every 100 attacked.

*Science News Letter, December 16, 1944*

## BOTANY

## Robomb Blasts Cause Plant to Fold Its Leaves

► **BLASTS** of Nazi robot bombs falling in the London area are just too much for one kind of potted plant kept in some greenhouses as a botanical curiosity. It folds up its leaves as if frightened, even when the explosion is at a considerable distance, reports E. S. Grew, a London botanist.

It must be added that this plant that can't "take it" is not a native English species, but an immigrant from the Indonesian tropics. It is commonly known as the telegraph plant; its scientific name is *Desmodium gyrans*. It is a member of the pea family.

Each of its compound leaves consists of a large middle leaflet and two small side leaflets, borne clover-fashion on a single stalk or petiole. By day, the leaves stand out at a wide angle from the plant's central stem; at night, the petioles fold up, the leaflets droop down, and the plant "goes to sleep." It assumes this "sleeping" posture when an explosion shakes the air, no matter what the time of day.

The plant received its common name from a peculiar habit of the two side members of each leaf, which are in constant visible motion when it is in its "waking" position, like a set of wig-wag signals. It was named something over a century ago, before the classic invention of Samuel Morse, when the name "telegraph" was commonly applied to the apparatus we now call a semaphore.

*Science News Letter, December 16, 1944*

# IN SCIENCE

## MEDICINE

## "Synthetic Blood Plasma" From By-Product of Sugar

► **A METHOD** for producing "synthetic blood plasma" from a by-product of sugar manufacture has been developed by two Swedish scientists, Anders Groenwall and Bjoern Ingelman, working under the supervision of Prof. Arne Tiselius of the University of Upsala, according to information received by the American Swedish News Exchange.

Dextran is the name given the material. Unlimited production of it is said to be possible. It can be easily transported as a powder, is reasonable in price and its use is not dependent on the blood group of the recipient.

Dextran has not yet come to the attention of medical authorities in Washington, but a number of preparations, such as pectin and gelatin, have been tried as substitutes for blood plasma in the treatment of shock.

One which the Germans developed has been investigated by authorities but has not proved very effective.

Blood plasma and serum albumen from human blood have not yet, however, been equalled as shock-combating substances by any of the substitutes so far investigated except, perhaps, under special circumstances.

*Science News Letter, December 16, 1944*

## AERONAUTICS

## Two-Thousand Mile Trip Made in Only 14 Hours

► **POSTWAR** airline promises were demonstrated recently when a group of Icelandic businessmen made a two-thousand-mile trip that would take 14 days by boat in only 14 hours, breakfasting at Reykjavik, Iceland, having luncheon in Canada, and dining the same evening in New York City.

Flown to the United States to attend the International Business Conference at Rye, N. Y., by the Air Transport Command, the men covered a distance almost equal to that between New York and Los Angeles. Higher-speed planes now being developed in American aircraft plants will be able after the war to complete the same trip in less than ten hours.

*Science News Letter, December 16, 1944*



# NE FIELDS

## ZOOLOGY

### Arabian Oryxes Now at National Zoological Park

► A ROYAL GIFT, consisting of a pair of Arabian oryxes, has been received at the National Zoological Park, Washington. These animals, the rarest and most beautiful of their kind, were presented by Sheikh Hamid Suleiman, son of the Arabian king, Ibn Saud, to James M. Landis, Minister of the Foreign Economic Mission to the Middle East, now at Cairo. They were brought by ship to Baltimore, and have just been released from quarantine there.

Arabian oryxes are among the most beautiful of all the antelope tribe, with great, curving horns. They show their desert affinities in at least two characters, Director William M. Mann of the Zoo pointed out: they are the lightest of all the oryxes, being almost white; and they have unusually large feet, enabling them to get about rapidly and without fatigue over the loose sand.

*Science News Letter, December 16, 1944*

## SEISMOLOGY

### Earthquake in Japan in Industrial Center

► THE MAIN Japanese islands were given a smashing jolt by the Pearl Harbor anniversary earthquake, is the indication of data transmitted through Science Service and interpreted by seismologists of the U. S. Coast and Geodetic Survey. Information received from Honolulu, and from the New Zealand observatory at Wellington, added to data from North American stations, placed the epicenter somewhere near latitude  $33\frac{1}{2}$  degrees north, longitude 132 degrees east.

This point is close to the southwestern tip of the largest Japanese island, Honshu, and near the smaller islands of Shikoku and Kyushu. Cities in this area that are the sites of important naval bases, great dockyards and crowded industrial developments include Nagasaki, Sasebo, Fukuoka, Shimonseki, Kobe and Osaka.

All reporting observatories agree that this earthquake was exceptionally severe—to be compared with the shock that wrecked Tokyo and Yokohama in 1923. There is at least a fair chance that one or more of the southwestern Nipponese

cities vital to the Empire's war effort, have been laid in ruins. An earthquake of the force shown by the instruments, especially when the great sea waves stirred up add to the havoc, can do more damage in a few minutes than a whole fleet of battle-ships lying off shore and shelling away all day.

North American stations reporting were the Dominion Observatory at Ottawa, Canada; the Seismological Laboratory at Pasadena, Calif.; Pennsylvania State College; the observatories of the Jesuit Seismological Association at Georgetown University, St. Louis University, Spring Hill College and Weston College, and the observatories of the U. S. Coast and Geological Survey at Tucson, Ariz., Ukiah, Calif., and San Juan, P. R.

*Science News Letter, December 16, 1944*

## METALLURGY

### Lithium, Lightest Metal, Ready for Postwar Use

► LITHIUM, lightest of all metals, weighing only one-fifth as much as aluminum, promises to have many postwar industrial applications. This silver-white metal, that occurs more plentifully in the earth than lead or tin, was little used before Pearl Harbor.

Today lithium and its compounds are used in high-conductivity copper castings, tin bronzes, silicon bronzes, aluminum welding, magnesium melting and casting, and in the heat-treating of metals. Removal of priority restrictions on lithium has opened the way to new uses, states Dr. Hans Osborg, vice president of Lithalloys Corporation, the country's largest producer of lithium metals and alloys.

*Science News Letter, December 16, 1944*

## MEDICINE

### New Chemicals May Prove Better Disease Remedies

► SYNTHESIS of new arsenic-containing chemicals that may prove effective as remedies against disease is under way in the organic chemical laboratories of Columbia University, Prof. Marston T. Bogert and Prof. William C. Stickler announce. (*Science*, Dec. 8).

The chemicals are known as guanidino arsenicals. They are related to another group of arsenicals which includes carbarsone, used in treating amebic dysentery. The guanidine part of the new group may be recognized by the layman who remembers that one member of the sulfa drug family is sulfaguanidine.

*Science News Letter, December 16, 1944*

## MILITARY SCIENCE

### Equipment Standardized for Army, Navy and Marines

► COMBAT MEN on battle fronts where the Army, Navy and Marines are fighting together will use increasingly similar equipment wherever possible, with interchangeable parts, in order to save each service branch from having to carry complete inventories of supplies. This is the result of the work of the joint Army-Navy Committee on Specifications, which has already standardized many items. Decreased costs and increased production are by-products.

Radio tubes, aircraft armor, ammunition components, explosives and photographic equipment are a few of the items for which joint specifications have been completed and are in use. The list covers a wide range, from articles of clothing to airfield landing mats, and includes electronic components, chemicals, insecticides, leather preservatives, and raw materials such as steel, brass and plastics.

The joint committee was created in December, 1942, and set to work without delay to bring about as extensive a standardization as possible of military items of similar characteristics used by both the Army and Navy. It is composed of representatives of the technical bureaus of both branches. It establishes, through joint specifications, common Army and Navy standards for capacity, performance, dimensions, packaging, and other necessary requirements.

The many advantages of joint specifications are discussed in a recent issue of *Industrial Standardization*, published by the American Standards Association by Col. B. L. Neis, War Department chairman of the joint committee.

He states, "Through the medium of Joint Army-Navy Specifications, the Army and Navy are energetically effecting standardization on the greatest possible amount of needed equipment, achieving thereby interchangeability of parts and conservation of manpower, materials, facilities, and the taxpayer's dollar." They are of great benefit to the producing industries, he says, as well as to the services.

A joint specification is an obvious prerequisite, Col. Neis declares, for the many items used by soldiers and marines when the two organizations are fighting in the same area. They are proving of particular value, for instance, in the Southwest Pacific where joint operations are being conducted.

*Science News Letter, December 16, 1944*

## ENGINEERING

# Climate a la Carte

There is hardly a critical operation in the production of vital materials that is not being done better, faster or cheaper because of machine-made weather.

By HARLAND MANCHESTER

► MANY PEOPLE THINK of air conditioning merely as an aid to the appreciation of Hedy Lamarr during the dog days. Actually there is hardly a critical operation in the production of vital weapons, explosives, tools, medicines, and foods that is not being done better, faster or cheaper because of machine-made climate.

Without air conditioning, much of the sensational new communications equipment could neither be manufactured nor employed at the front. Electronic tubes, like light bulbs, are highly efficient furnaces, and if the heated atmosphere were not continuously exchanged for artificially cooled air, any room where a large number of these tubes are made, tested or used would quickly become a Turkish bath. These facts were not clearly understood when the electronics industry launched its skyrocketing war program, and in one factory which relied upon natural air, rejection of faulty tubes ran as high as 80%. Now processed air is a must.

On naval vessels some of the newly developed communications equipment is used in sealed chambers thickly walled against gunfire and outside disturbances. Air which is mechanically cooled and filtered makes these rooms endurable. Air conditioning keeps gun crews efficient by pumping out powder fumes and pumping in fresh, cool air; and down in the magazines it protects stored powder from deterioration.

## Vital in South Pacific

The roofs of military radio trucks in the South Pacific are often heated by the sun to 160 degrees or so, and inside there is enough radiation from the tubes to heat a house. No one could exist long, let alone work, in these trucks without the special air conditioning equipment which has been built in.

"Sweatboxes," they used to call the ready rooms on aircraft carriers, where pilots assembled in their heavy flying suits to hear final orders before guiding their planes to the cold upper regions. Now the rooms are mechanically chilled, and a prelude of discomfort is removed

from a job which demands the utmost in alertness.

Repairing a bombsight or a radio set on the hot, sandy desert or a fetid Pacific island was once a job to try a mechanic's soul. Now there is a portable air-conditioned repair hut, which telescopes into a package small enough to be shipped by air transport to any remote point, and repairs to delicate instruments are made in half the time with no sweat or dust.

## Grounded Planes Cooled

On a tropical front not even the hardest mechanic can work for more than a few minutes in the stifling cabin of a grounded plane. Now there is in production a mobile cooler and dehumidifier which can be wheeled up beside the plane to deliver cooled air through canvas tubes.

The hottest place in an air field used to be the glass-enclosed control tower, where there is no escape from the sun. This was hell on the personnel, and bad for the weather-recording and radio instruments. Packaged cold came to the rescue.

Operating and X-ray rooms in many base hospitals are now comfort-cooled, thereby reducing the danger of infection from sweat and dust, increasing the efficiency of surgeons, and generally contributing to the remarkably low death rate from wounds. Many wounded men are also kept comfortable on the way to the hospital in air-conditioned Pullman-type ambulances.

Aerial photographic films must be developed and the prints dried and ready for use in a matter of minutes. This would be impossible in hot climates without the Army's new trailer darkrooms in which air conditioning keeps film free from dust, holds emulsions at specified temperatures, and checks perspiration.

During the fighting in Africa, a completely air-conditioned motor caravan, the first of its kind, enabled a flying squadron of engineers and technicians to eat, sleep and do their paper work in cool comfort while the thermometer outside registered about 130 degrees.

Mechanical air-cooling is much the same thing whether it keeps you cool in a theater or keeps the milk cool in your refrigerator, and one of its valuable applications is in the Army's new portable units. By means of these mobile coolers, meats and vegetables frozen in American plants stay frozen all the way to the mess sergeant's storehouse on some obscure island half way around the world.

Self-refrigerating storeroom units are carried in the hold and delivered full of frozen meat or vegetables at advanced bases. Trailers carry 8,000 pounds of frozen beef apiece, which is kept at about 10 degrees. At the front the tractor is unhooked and driven off, and the trailer becomes a stationary cooler with its own power plant. Packaged cold is bringing fresh food to more soldiers than ever before in the history of warfare.

Meanwhile, on the war production front, tailored weather has broken a score of bottlenecks. Temperatures in copper mines run as high as 150 degrees, and once it was standard practice to blow air through the tunnels for three years or so until they were cool enough to work in. Now these sweltering holes are cooled in less than a month.

As factory technology improves, more and more machines are assembled in a given space. Every machine generates heat by friction; the bulbs and tubes which illuminate the plant give off more heat, and every worker constantly gives off as much heat as comes from a 100-watt light bulb. In many of these plants the temperature would be 100 degrees or more if industry had to depend upon natural atmosphere, and the work could not be done.

## Fingers Kept Dry

High-precision instruments made for the Navy were being rejected in large numbers despite rigid inspection at the plant. After a few weeks tiny specks of corrosion on their highly polished surfaces made them useless. The "saboteur" was finally identified. If in the process of assembly a damp finger-tip so much as brushed one of the mirrorlike areas, the acid in the perspiration planted the invisible germ of future deterioration. Air conditioning keeps the workers' fingers dry. There is no trouble now.

A blue print six (Turn to Page 396)



## Television's Magic Light

### HOW PHOSPHORS BRIGHTEN RADIO'S FUTURE

● In RCA Laboratories under special conditions in a "specpure" laboratory specially built to keep out even the slightest impurities of dust—new materials called "phosphors" are crystallized in furnaces at white heat.

When these crystals on the face of a television receiver tube are "bombed" by electrons, the television picture is recreated.

Development of phosphors that translate electrons into "magic light" made RCA all-electronic television practical for the home.

Besides television, phosphors serve many other useful purposes—fluorescent lighting for homes and office, luminescent tapes and plastics for dark interiors, especially on shipboard; in electron microscopes to probe the submicroscopic world, indirect illumination whereby the walls give off light, better theatre projection and sound reproduction.

Phosphors are one more example of how widely diversified are the ultimate benefits achieved through RCA research.



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## From Page 394

feet long, drawn in the cool of the evening, may expand by as much as an inch in the heat of the day, which may easily lead to a serious error in construction. And once there was an annual loss of thousands of man-hours due to the smearing of blueprints by sweating hands. Now all the war plant drafting rooms are supplied with dustless, uniform artificial weather.

One reason for the great improvements made in our warplanes and weapons is the closer fit, or finer tolerances, of the various parts. This has raised problems in mass production. A part made

in the cool of the night and assembled in the heat of the day may expand enough to be rejected. Or a part made in St. Louis may not fit a companion part produced in the cooler climate of Springfield, Mass. Air conditioning removes these inequalities, "freezing" dimensions during manufacture. All delicately fitting parts are now made in the same artificially controlled climate, so that no matter when or where a part is made, it fits when it reaches an assembly plant or when it is used to repair a stricken plane in a distant battle zone. Tailored weather now makes it possible to pro-

duce all manner of delicate instruments by mass-production methods. It is estimated that production of the famous Norden bombsight would be cut 50% during the summer months without air conditioning.

The highly polished gauge blocks, finely divided calipers, and other super-accurate measuring devices used by every production plant to check the accuracy of tools are themselves prey to contraction and expansion with changes of natural weather. Experts say that if the temperature of the test room varies by as much as one degree they can detect a difference in these "yardsticks." Here again air conditioning prevents error. With test rooms kept constantly at 68 degrees, and relative humidity at 50%, these final arbiters never lie.

Until 1931, all the gases used as refrigerants were toxic, inflammable or uneconomical. The unsafe gases had caused a number of fires and fatal accidents. The answer came in 1931 from the late Thomas Midgley, Jr., famous as the man who discovered that tetraethyl lead would take the knock out of gasoline. Charles F. Kettering phoned Midgley at his Dayton laboratory and told him what was needed. Midgley and his assistants set to work, came up in three days with "dichlorodifluoromethane,"—which goes, mercifully, under the trade name of Freon. At a conclave of chemists Midgley inhaled a lungful of Freon, and then blew out a candle with it, proving dramatically that it was non-toxic and non-inflammable. Soon Drs. M. A. Youker and H. W. Daudt of the DuPont company found a way of making the rare and complex gas cheaply.

Freon, in its various forms, has revolutionized the whole business. It is not only safe, but its superior properties have made it possible to reduce the size and weight of the machinery. For example, the new gas makes possible a supply of fresh, cool air in a submarine. The crews can even smoke.

Air conditioning is slated for a tremendous postwar boom. It is reasonable to expect that within a few years virtually all factories, shops, laboratories, trains, hotels, assembly places, office buildings and new apartment houses will be equipped with controlled weather, with immense dividends in comfort, health and efficiency. And in the future, perhaps the distant future, lies the goal of weather-as-you-like-it in the average home.

This background story on air conditioning will appear in Reader's Digest for January.

Science News Letter, December 16, 1944

### ALEŠ HRDLICKA'S

#### *Final bequest to science and posterity*

TWO VOLUMES

#### THE ANTHROPOLOGY OF KODIAK ISLAND

A description of the author's experiences and findings on Kodiak Island, which lies just south of the Alaskan Peninsula. Once inhabited by a native people calling themselves "Koniags," now scarcely a dozen full-blooded natives remain. For the first time, an interesting and authentic description of these early people, who may have been ancestors of some of our American Indians.

#### THE ALEUTIAN AND COMMANDER ISLANDS AND THEIR INHABITANTS

The companion volume which grew out of Dr. Hrdlicka's search for traces of the people that preceded the Koniags. As on Kodiak, there was once a large native population on the Aleutians; today the Aleuts are nearly gone and the Islands are peopled by American soldiers. Dr. Hrdlicka examined and reports on many of the pre-historic village sites on the Aleutians as well as on the Russian-owned Commander Islands off the Asiatic Coast. The Commander Islands rarely have been visited by scientists. The author's experiences in search of early man will appeal both to scientists and to all those interested in the places occupied by our soldiers.

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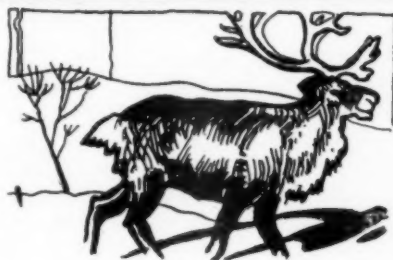
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ZOOLOGY

# NATURE RAMBLINGS

by Frank Thone



## Before Santa Claus

► LONG BEFORE St. Nicholas became Santa Claus, with his six-in-hand team from Lapland, reindeer figured in the mid-winter feast. But they were the meat on the table, rather than the steeds of the giftbringer; and the winter was a most uncommonly long and severe one.

Much longer and colder than any that Grandpa remembers, that winter was, for it was the Great Ice Age itself, that shoved deep glacial fields over most of Europe, where our Stone Age ancestors were struggling to keep themselves alive despite thousands of years of cold, hard times.

Bones piled up in their old dwelling-places, and vividly realistic animal paintings and sculpturings left by the astonishingly talented artists among those primitive peoples, show that during a very considerable part of this long period a species of reindeer was a prime source of food, besides furnishing hides for clothing and bone and antler for weapons, tools and ornaments. These Ice Age predecessors of ours depended on the reindeer as the hunting Indians of northern Canada nowadays depend on the reindeer's big, wild cousin, the caribou.

As a matter of fact, the reindeer which the Stone Age men hunted seems to have been closer to the modern American caribou more closely in some respects than it was to the modern European reindeer. Certainly it was considerably bigger than the domestic reindeer of Lapland.

Whether the modern reindeer is a descendant of the larger ancient animal, or represents a species that was distinct from it even during the Ice Age, there is no present way of telling. It is at least a plausible guess (though nothing more) that the modern domes-

tic reindeer resulted from a long process of selection in which men strove to get animals that would be manageable despite the intractability and general obstreperousness of the whole reindeer-caribou tribe. For the big, wild caribou is simply too strong for a man to "horse around," whereas the reindeer is small enough to be managed by the short but sturdy Lapps, no matter how he may

balk at being harnessed, or how much the female animal may object to being milked.

*Science News Letter, December 16, 1944*

*Aysen territory*, in southern Chili, is reported to have vast untapped natural resources in huge tracts of virgin timber, fertile farm lands, and deposits of gold, coal and other minerals.

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for men of the hour...

Greatly accelerated production of optical parts—with no deviation from Bausch & Lomb exacting standards of precision manufacture—is contributing much to the uninterrupted supply of binoculars for our fighting men. Consider binocular prisms, for example. Advanced techniques, developed by Bausch & Lomb long before the war, make possible a prism a minute every working minute of the day.

Multiply this by equally spectacular production of hundreds of other binocular parts. Add range finders, sextants, gun sights and numerous other optical instruments of war—then only can you begin to visualize the wartime activity at Bausch & Lomb, America's optical arsenal.

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## BOTANY

# Yule Tree Identification

► THE MEN and women serving overseas in our armed forces may find themselves singing around some quite strange trees, come Christmas Eve. Some of them will be recognizable enough as conifers, relatives to pines and spruces and firs; others will be exotic growths from the jungle—evergreens, true enough, but with broad, flat leaves like the magnolias and bays of our own Southeast.

Most used here at home, probably, are spruces; most prized, when obtainable, are balsam firs. But little pine trees, of a dozen or more species, enter the picture to a considerable extent, as well as red cedar, arborvitae, hemlock and a number of evergreens of more local distribution. In the Northwest, Douglas fir is a favorite Christmas-tree species; it is also beginning to be shipped eastward in considerable quantities.

So many and varied are the species in the small forests that annually invade our cities at Yuletide that many persons of no botanical pretensions give up trying to identify their Christmas trees as

a job too tough for them. It isn't, necessarily: you can tell what kind of tree you are getting by following a few simple guides.

To begin with, if the leaves (or needles) are more than an inch long, and are borne two or more in a cluster, it is some kind of a pine. Most pines sold as Christmas trees belong to the yellow-pine group; needles are normally in twos, though often you will find them in threes and occasionally in fours. Evergreens with five needles to a cluster are white pines; but white pines are seldom used for Christmas trees.

If the needles are relatively short, and each is attached to the stem singly, your tree is likely to be one of three kinds: spruce, balsam fir or Douglas fir. The three are not difficult to tell apart.

Spruce needles are quite stiff and sharp-pointed, and they stand out around the twig in all directions, so that if you grab hold of it you get a prickly handful, like a miniature porcupine. If you cut a needle in two with a sharp knife, you get a square cross-section. Also, each needle is mounted on a kind of tiny hump on the bark of the twig.

Balsam fir needles are their opposites in almost every way. They are blunt-pointed, soft and curved; their cross-section is elliptical, and they do not prickle your palm if you grab them. They grow directly out of smooth bark. Often the trunk and branches are sticky with oozing resin—the "balsam" for which the tree is named.

Douglas fir is not really a fir; although it is also called Douglas spruce it is not a spruce, either. Despite the fact that it is one of the noblest of our trees, it has no proper name of its own—it is a kind of botanical orphan.

In appearance it is intermediate between spruce and fir. Its needles are blunt-ended, but are not so heavy as those of the balsam fir.

If your Christmas tree has cones on it (as sometimes happens even with small trees) they will make identification surer. Spruce cones always hang down; fir cones always stand up, like thick little candles. This is an invariable rule.

Douglas fir has down-hanging cones, like spruce, but they are absolutely unique among all evergreens in one thing. Between each pair of scales projects a curious, three-pointed tongue-like appendage.

Hemlocks are also sold as Christmas trees to some extent, though they are not much good because of the readiness with which they shed their leaves. Their leaves are very short, soft, blunt-tipped; they project from the twigs in a horizontal two-ranked arrangement. The cones are very small and thin-scaled.

Red cedar (which is really no cedar at all but a juniper) has short, fine, needle-tipped leaves completely covering the twigs. The fruits are not cones but bluish-skinned berries.

Hardest put to find a proper Christmas tree will be troops holding down low-lying Pacific atolls where only coconut trees grow. You can't make a coconut palm look like a spruce—the shape just isn't right. But probably the Engineers and their seagoing brethren the Seabees (who can do anything) will manage to rig up acceptable synthetic Christmas trees out of such unpromising materials as old crates, empty oil drums or discarded ammunition cases. You can't stop Yank ingenuity, whether it's set upon winning a fight or having a feast.

*Science News Letter, December 16, 1944*

Syria and Lebanon in 1943 produced nearly 1,500,000 pounds of *silk cocoons*.



## AIRLINE USES L&N TEST SET IN VELD AND JUNGLE

To test telephone overland lines in Africa and to check radio equipment on the trans-African airline, Pan American Airways find L&N test sets "very valuable".

One of the instruments widely used by PAA in both power and communication lines is our Type S Test Set.

This is a rugged Wheatstone bridge, conveniently portable; equally useful in shop and field for testing insulation, measuring resistance or locating faults in communication circuits. Its range extends to 9999 ohms in steps of 1 ohm. Its price is \$90.

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# Books of the Week

AMERICA'S NEW OPPORTUNITIES IN WORLD TRADE—*Nat. Planning Assn.*, 79 p., paper, 50c (Planning Pamphlets Nos. 37-38).

BURMA SURGEON—Lt. Col. Gordon S. Seagrave—*Infantry Journal*, 215 p., paper, 25c.

THE CAPTURE OF ATTU, As Told by the Men Who Fought There—The War Department—*Infantry Journal*, 217 p., paper, illus., 25c.

FREUD, MASTER AND FRIEND—Hanns Sachs—*Harvard Univ. Press.*, 195 p., illus., \$2.50.

HANDBOOK OF INDUSTRIAL PSYCHOLOGY—May Smith—*Philosophical Lib.*, 304 p., \$5.

IMMUNO-CATALYSIS—M. G. Sevag—C. C. Thomas, 272 p., \$4.50.

INTERNATIONAL AIR TRANSPORT—Brig.-Gen. Sir Osborne Mance—*Oxford*, 117 p., paper, illus., \$1.

INTERNATIONAL TELECOMMUNICATIONS—Brig.-Gen. Sir Osborne Mance—*Oxford*, 90 p., paper, \$1.

JOURNALS DEALING WITH THE NATURAL, PHYSICAL AND MATHEMATICAL SCIENCES IN LATIN AMERICA, a Tentative Directory—Katherine Lenore Morgan—*Pan American Union*, 62 p., paper, 50c.

LEADERSHIP FOR AMERICAN ARMY LEADERS—Col. Edward Lyman Munson, Jr.—*Infantry Journal*, 99 p., paper, 25c.

ORGANIC CHEMISTRY—Louis F. Fieser and Mary Fieser—*Heath*, 698 p., illus., \$4.

A REVIEW OF STUDIES ON THE MEXICAN FRUITFLY AND RELATED MEXICAN SPECIES—A. C. Baker and others—*Gov. Print. Off.*, 155 p., paper, illus., 35c (U. S. Dept. of Agric., Misc. Pub. No. 531).

SOUTHERN HORTICULTURE—H. P. Stuckey—*T. E. Smith*, 688 p., illus., \$2.56.

*Science News Letter*, December 16, 1944

## ASTRONOMY

### Synthetic Sky Speeds Training of Navigators

► A SYNTHETIC SKY, studded with shining electric stars, to be used in training air navigators to find their way at night over any land or sea in the world, has been patented by Edwin A. Link of Binghamton, N. Y., already well known as the inventor of the widely used Link trainer for pilots. His new invention is covered by U. S. patent 2,364,539.

In the device, the trainee sits in a replica of the navigator's place in a bomber. Over his head is a dome-shaped canopy, with bright pin-points of electric light to represent the stars. By a series of electric controls at the command

of the instructor, this artificial sky can be "set" for any hour of the night, any season of the year, any latitude and longitude on earth. The stars may all be turned on at full brilliance, or they may be partly dimmed out as by thin overcast.

To make the illusion even more complete, and to give the young trainee full measure of actual working difficulties, a series of motions of his seat and desk are arranged for, simulating the motions of a plane in flight.

*Science News Letter*, December 16, 1944

## INVENTION

### Rubber Articles Are Plastic-Bonded for Leakage

► RUBBER tires, gasoline tanks, hot-water bottles and similar articles are made proof against leakage of either air or liquids by a double-walled, plastic-bonded construction on which Edwin T. Wyman of Brookline, Mass., has taken out patent 2,360,925. The plastic between the two bounding layers of vulcanized rubber automatically seals incipient leaks and small punctures and prevents their becoming more serious.

*Science News Letter*, December 16, 1944

## Post-Surgical Starvation

with its wastage of body tissues, especially tissue and plasma protein, "begins almost at once after protein is omitted from the diet." Hence it is recommended\* that meat and other protein foods be added to the diet as soon as possible after surgery. Meat is not only rich in protein, but its protein is of highest quality, able to meet every protein need.

\*"Surgeons are accustomed to

attribute most of the postoperative weakness or asthenia to the operative procedure without realizing that much of it may actually be due to starvation, particularly deprivation of protein . . . the fall in plasma albumin begins with the very onset of a protein deficient diet . . . Solid food, as eggs and meat, should be added as soon as possible. Most postoperative patients can eat food much earlier than they are usually permitted to." Elman, R.: Acute Starvation Following Operation or Injury: With Special Reference to Caloric and Protein Needs, *Ann. Surg.* 120:350-361 (Sept.) 1944.



The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

AMERICAN MEAT INSTITUTE  
MAIN OFFICE, CHICAGO... MEMBERS THROUGHOUT THE UNITED STATES

# • New Machines and Gadgets •

❁ **FINGERNAIL** polish removing device is a small tube, one end of which fits the bottle of polish remover, the other end enlarged to fit the finger. The larger end is flattened on one side and has two slots for a narrow cloth to rub on the fingernail, which is wetted by up-ending the bottle.

Science News Letter, December 16, 1944

❁ **BUDGETING** pocketbook, recently patented, is a woman's handbag with a number of small individual purses stitched in a row on the inside. Each purse is labeled to indicate for what purpose the money contained therein is intended. The pocketbook is designed to help the owner "observe a budget."

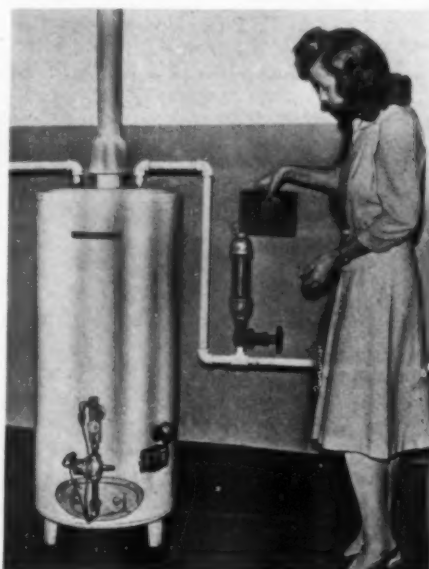
Science News Letter, December 16, 1944

❁ **DIRECTION**-aiming device for automobiles permits the driver to see in advance the exact line of travel the wheel of the car will take. It consists of an open sight fixed on the windshield and another on the hoodcap. The line of sight through these two openings hits the road where the wheel will pass.

Science News Letter, December 16, 1944

❁ **ICE GUARD** for drinking glasses holds the cracked ice below the surface and away from the lips of the user. A circular wire or other screen is held in place inside the glass by a clip fitted over the rim.

Science News Letter, December 16, 1944



❁ **CHEMICAL** solution feeder, shown in the picture, permits the housewife to insert into the plumbing system compounds to remove scales and corrosion from the inside of pipes, tanks and boilers. Several chemical compounds for this purpose are available, one being a soluble sodium-phosphate glass.

Science News Letter, December 16, 1944

❁ **STORM WINDOW**, made of a transparent flexible plastic, is raised and lowered as needed much in the same way as the ordinary window shade. The

edges of the flexible material run in felt-lined side channels, thus preventing air circulation. Sprocket wheels and chain help in lowering and raising the plastic sheet.

Science News Letter, December 16, 1944

❁ **SHORTHAND** practice book, for learning stenography without an instructor, consists of a series of exercises, each of which have three sheets, one under the other. The top replaceable transparent sheet is lined for writing in shorthand directly over visible words on the second sheet. The third sheet has the correct shorthand characters.

Science News Letter, December 16, 1944

If you want more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N St., N. W., Washington 6, D. C., and ask for Gadget Bulletin 238.

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## Question Box

### ASTRONOMY

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### BOTANY

What is the real name of the Douglas fir? p. 398.

### ENGINEERING

How vast is the present use of air conditioning? p. 394.

What is papreg? p. 391.

### GEOGRAPHY

Where do the men who fly the bombers to Iceland receive their "briefing"? p. 389.

### MEDICAL ECONOMICS

What is the plan which has been presented by the Health Program Conference? p. 388.

### MEDICINE

From what is the "synthetic blood plasma"

developed in Sweden made? p. 392.

How successful was penicillin in the human anthrax cases in which it was tried? p. 392.

What is the "material of choice"? p. 392.

### ORDNANCE

How is heavy artillery made more accurate by new electronic equipment? p. 388.

### PUBLIC HEALTH

What is shipyard eye? p. 387.

Why is it believed that a number of men serving in the armed forces where leprosy is prevalent will become its victims? p. 387.

### SEISMOLOGY

What part of Japan was affected by the earthquake? p. 393.

### ZOOLOGY

From where did the two oryxes now at the zoo in Washington come? p. 393.

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